Feb. 26, 1952 C. A. DONDANVILLE 2,586,923

CORN POPPING MACHINE

Filed May 5, 1949 2 SHEETS—SHEET 1

Fig. 1.

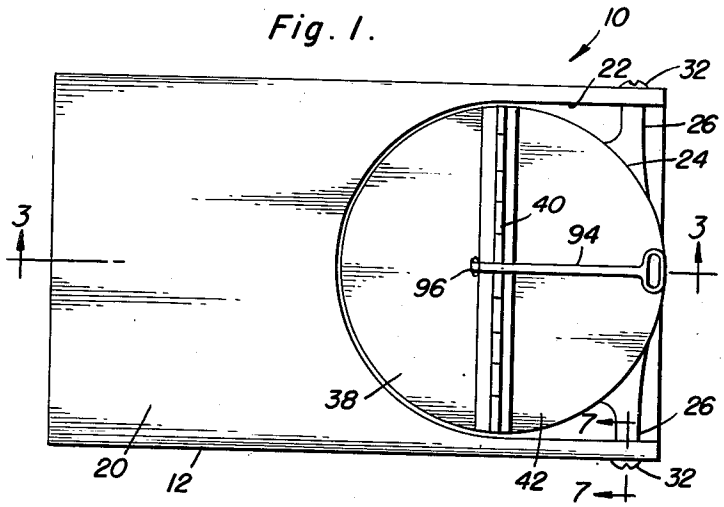


Fig. 4.

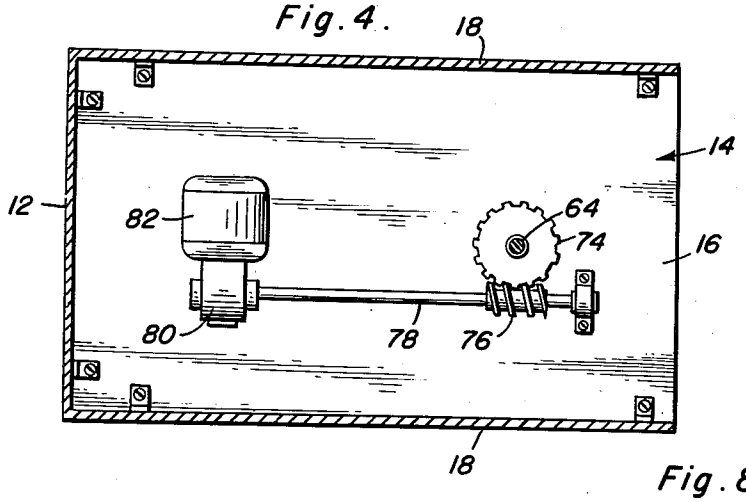


Fig. 6.

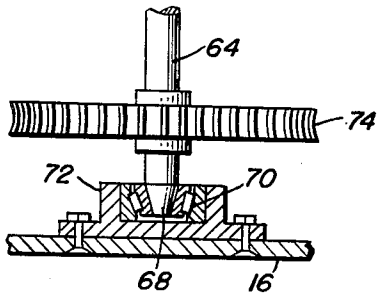
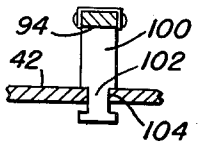


Fig. 8.



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2 SHEETS—SHEET 2

Fig. 3.

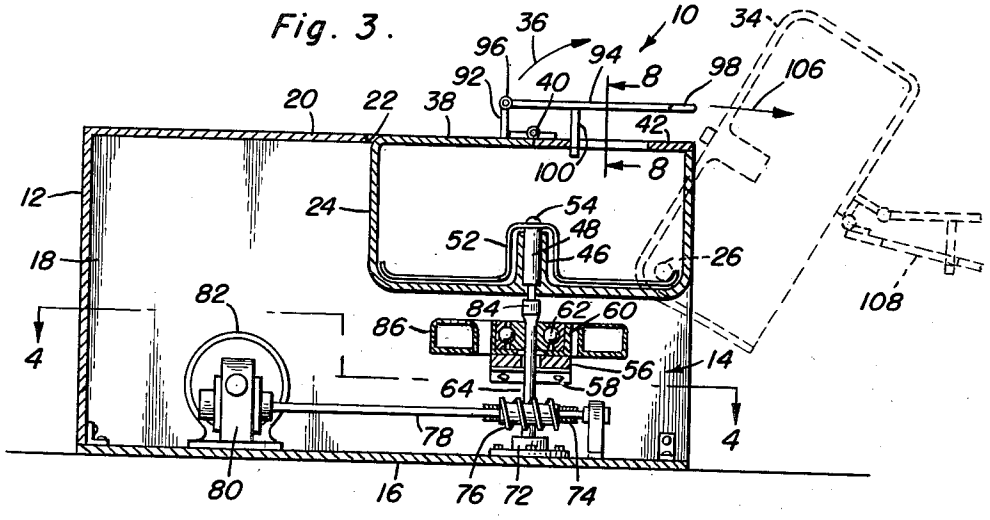


Fig. 2.

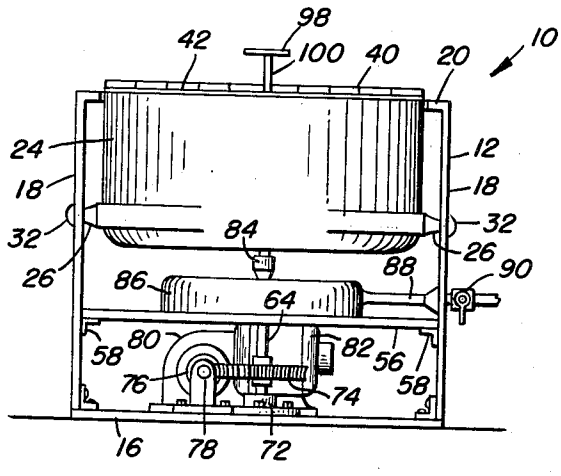
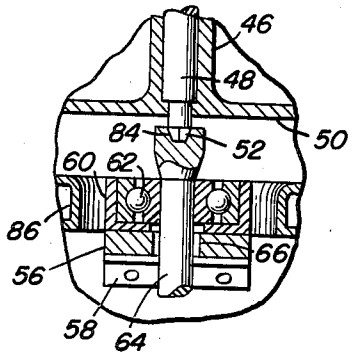


Fig. 5.



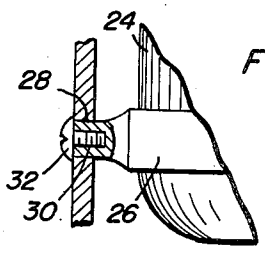


Fig. 7.

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UNITED STATES PATENT OFFICE

2,586,923

CORN POPPING MACHINE

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1 Claim. (Cl. 99—238.5)

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This invention relates to new and useful improvements and structural refinements in corn popping machines, particularly those intended for large scale, commercial production of popcorn, and the principal object of the invention is to enable the corn popping operation to be effected speedily, efficiently and conveniently in large volumes, and with the expenditure of the minimum of effort on the part of the operator.

One of the primary features of the invention involves the provision of a corn receptacle mounted for tilting movement so that the popped corn may be easily emptied therefrom, together with a stationary heat producing unit disposed under the corn receptacle, which unit by virtue of its stationary mounting, eliminates the disadvantage of having to tilt the weight of the unit conventionally associated with the receptacle.

Another feature of the invention involves the provision of a rotatable agitator in the receptacle and power actuated means for rotating the same, together with a separable connection between the power means and the agitator to facilitate tilting of the receptacle.

Some of the advantages of the invention reside in its simplicity of construction, in its convenient operation, and in its adaptability to economical manufacture.

With the above more important objects and features in view and such other objects and features as may become apparent as this specification proceeds, the invention consists essentially of the construction and arrangement of parts as shown in the accompanying drawings in which;

Figure 1 is a top plan view of the invention

Figure 2 is an end view thereof

Figure 3 is a cross-sectional view, taken substantially in the plane of the line 3—3 in Figure 1

Figure 4 is a cross-sectional view, taken substantially in the plane of the line 4—4 in Figure 3.

Figure 5 is a fragmentary cross-sectional detail showing the separable connection between the drive shaft and the agitator shaft used in the invention.

Figure 6 is a fragmentary cross-sectional view showing the arrangement of a combined radial and end thrust bearing for the drive shaft.

Figure 7 is a cross-sectional detail, taken substantially in the plane of the line 7—7 in Figure 1, and

Figure 8 is a cross-sectional view, taken substantially in the plane of the line 8—8 in Figure 3.

Like characters of reference are used to designate like parts in the specification and throughout the several views.

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Referring now to the accompanying drawings in detail, the invention consists of a corn popping machine designated generally by the reference character 10, the same embodying in its construction a box-shaped housing 12 having an open side 14 and including a bottom 16, a pair of spaced side walls 18 and a top 20, the latter preferably being provided with a recess 22 which extends inwardly from the open side 14, as is best shown in Figure 1.

A substantially circular corn receptacle 24 is provided in the housing 12 and is equipped at one side thereof with a pair of horizontally aligned trunnions 26 which, in turn, are rotatable in a pair of apertures 28 formed in the housing wall 18, as is best shown in Figure 1. The trunnions 26 may be formed with screw-threaded apertures 30 to receive suitable screws 32 whereby the receptacle is prevented from shifting transversely in the housing 12, but is permitted to be tilted from the substantially upright, normal position illustrated by full lines in Figures 1, 2 and 3 to a tilted or discharging position shown by the phantom line 34 in Figure 3. It is to be noted that when the receptacle 24 is in its upright position, it is disposed in the recess 22 of the housing top 20 but when it is tilted in the direction of the arrow 36 in Figure 3, the receptacle projects outwardly through the open side 14 of the housing.

The receptacle 24 is preferably provided with a stationary, semi-circular top 38 to which is hinged as at 40, a semi-circular, openable cover 42.

The receptacle 24 is provided substantially at the center thereof with an inwardly extending, substantially tubular boss 46 in which is rotatably journaled an agitator shaft 48. The lower end portion of this shaft is diametrically reduced and projects outwardly through the bottom 50 of the receptacle 44, terminating in a polygonal adapter portion 52, (see Figure 5).

An agitator assembly 54, simply assuming the form of a plurality of outstretched arms, configurated as shown in Figure 3, is secured to the upper end of the shaft 48 as at 54, it being apparent that when rotation is imparted to the shaft 48, the agitator assembly 54 will rotate in the receptacle 24 and thus prevent the corn therein from becoming burnt.

A transversely extending beam 56 is provided in the housing 12, being secured at the ends thereof to the side walls 18 by suitable brackets 58, this beam providing a support for a housing 60 of an anti-friction bearing 62. This bearing is mounted upon a substantially vertical drive

shaft 64 which extends downwardly through an aperture 66 formed in the beam 56 and has a tapered lower extremity 68 disposed in a combined radial and end thrust bearing 70, (see Figure 6).

The bearing 70, in turn, is disposed in a mounting flange 72 secured to the bottom 16 of the housing 12, and it is to be noted that the drive shaft 64 carries a worm wheel 74 which is operatively engaged by a worm 76 secured to a horizontal counter-shaft 78. The countershaft 78 is operatively connected through the medium of a reduction gear box 80 to the armature shaft of a suitable electric motor 82 mounted on the bottom 16 of the housing 12, it being apparent from the foregoing that rotation of this motor will be transmitted by the shaft 78 and the associated gearing to the drive shaft 64.

The upper end portion of the drive shaft 64 assumes the form of a polygonal socket 84 which is adapted to receive the polygonal adapter portion 52 of the agitator shaft 48 when the receptacle 24 is in its normal, upright position, whereby rotation of the drive shaft 64 will be transmitted to the shaft 48 and to the agitator 52, as will be clearly apparent. However, the drive connection 52, 84 is separable and conveniently facilitates tilting of the receptacle 24 when so desired. It is to be also observed that when the adapter portion 52 of the shaft 48 is seated in the socket 84 it constitutes what may be referred to as a stop or rest whereby the receptacle 24 is supported in its normal, upright position.

The heat generator for popping the corn in the receptacle 24 may be actuated by electricity, gas or the like, and is preferably in the form of an annulus 86 supported by the aforementioned beam 56 and surrounding the housing 60 of the bearing 62. In this manner the heat producing unit is stationary and need not be elevated each time the receptacle 24 is tilted. The reference character 88 designates a conduit for supplying the heating agent to the generator 86 while 90 indicates a valve or switch on the conduit, as the case may be.

Referring again to the top and cover for the receptacle 24, it is to be noted that a rigid bracket 92 extends upwardly from the top 38 at a point adjacent the hinge 40, and a handle 94 is pivoted at one end thereof to this bracket, as at 96. The handle 94 extends over the cover 42 and terminates at its remaining end in a hand grip 98, while a rigid finger 100 extends downwardly from an intermediate portion of the handle and is provided adjacent its lower end with a reduced neck 102.

This neck is slidable in a slot 104 provided in the cover 42, and it will be apparent that when the entire receptacle 24 is tilted by pulling the handle 94 as at 106, the cover will be automatically opened, as indicated at 108. Similarly, when the receptacle is returned to its upright position, the cover will be automatically closed.

It is believed that the advantages and use of the invention will be clearly apparent from the foregoing disclosure and accordingly, further description thereof at this point is deemed unnecessary.

While in the foregoing there has been shown and described the preferred embodiment of this invention it is to be understood that minor changes in the details of construction, combination and arrangement of parts may be resorted to without departing from the spirit and scope of the invention as claimed.

Having described the invention, what is claimed as new is:

In a corn popping machine, the combination of a normally upright receptacle mounted for forward tilting movement about a transverse horizontal axis, a top wall provided on the rear half portion of said receptable, the front half portion of the receptacle having an opening at the top thereof, a cover for said opening hinged at its rear edge to the front edge of said top wall, a forwardly projecting handle pivotally connected to said top wall for tilting the receptacle, and an operative connection between said handle and said cover whereby the cover is opened when the receptacle is tilted, said operative connection comprising a downwardly projecting finger provided intermediate the ends of said handle and formed at the opposite side edges of the lower end portion thereof with notches defining a sectionally reduced neck, said cover being provided with a forwardly and rearwardly extending slot, the lower end of said finger projecting through said cover and said neck being slidable in said slot whereby the finger is operatively connected to the cover.

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